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The Impact of Leverage Levels on Firm's Performance and Profitability: a case of Pakistani Industries

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Abstract: This paper examines the relationship between the leverage levels, performance and profitability of the 19 Pakistanis firms with in three sectors, commercial banking, cement and fertilizer sector starting from 2004 to 2010. The purpose was to check the trends which are being followed by these industries and how much their capital structure policy is dynamic and relating to their sale, earnings, performance and stock values. Arithmetic Mean (A.M), standard derivation (S.D) were used to check the trend of data and then correlation was used sector wise to check the relationship of dependent and independent variables. At the end Regression test was employed on data .Study finds that there is relationship between leverage ratio i.e. DTCM (independent variable) and its determinants i.e size, tangibility, return on asset and RET except cash. A debt does not represent a suitable form of financing with value-enhancing investment projects of the firms, as an alternative, such firms issue equity. On the other hand, when there is a lack of profitable projects, a firm prefers issuing debts and increasing dividends. Management can increase the performance and profit indicators just by changing the debt equity structure.

Keywords: *Leverage, Capital Structure, Firm's Profitability, Performance*

1. Introduction

The objective of any firms is to maximize the shareholder wealth. Shareholder mean those investor which invest their money to generate profit (dividend) for long run time period that's way management invest their money in such kind of projects which are more profitable. Nevertheless, there are risks attached with every kind of profits rather than it is high or low. Therefore, management starts their job, that how to generate the finance for this project by following the key formula "high return on low risk", because financing is the first step towards the profit. The origin of modern capital structure theory lies in the work of Modigliani and Miller (1958) in their famous proposition I often referred to as the "irrelevance theorem". The theorem suggests that, as an implication of equilibrium in perfect capital markets, the choice of capital structure does not affect a firm's market value.

Leverage is a financing strategy, designed to increase the rate of return on owners' investment by generating a greater return on borrowed funds than the cost of using the funds. If ROA is greater than the before-tax interest rate paid on debt then the leverage could be positive. Negative leverage occurs when the ROA generated by a firm is less than the before-tax interest on debt (Damodaran; 1999). Abor (2005) conducted a study on the effect of debt on firms in Ghana that indicated a significantly positive association between total debt and total assets and return on equity. The results therefore portrayed a positive leverage. According to Berkivitch and Israel (1996), a firm's debt level and its value will be positively related especially when shareholders have absolute control over the business of the firm and it will be negatively related when debt holders have the power to influence the course of the business. The impact of debt on value of firms therefore, depends on the balance of power within a firm. If shareholders have more power, a positive leverage will prevail and if debt holders have more power, a negative leverage would take place.

A couple of studies also carried out on leverage reached a different conclusion, which is the use of debt leads to negative leverage. A study carried out by Zou and Xiao (2006) on financing behavior of listed Chinese firms resulted in a conclusion that a negative relationship between profitability and firm leverage exists. There is a lot of research work that has been done on capital structure in developed countries but unfortunately, limited work has been done before in Pakistan. This paper is the attempt to study the capital structure in Pakistan by considering the importance of capital structure. This paper investigates

the answer of this question, what the level of leverage ratio in Pakistanis sectors and its relationship with determinants of leverage ratio.

2. Literature Review

Financial managers and economists, consider three types of corporate financial decisions i.e. dividends, leverage and risk. As Jensen and Meckling's (1976), had introduced asset substitution concept and they quoted that levered firms can undertake risks to confiscate the value from their bondholders for the shareholder benefits. Leland and Toft (1996), Diamond (1989), Bender *et al*. (2005), Campbell and Kracaw (1990) introduced the concept that management, which is actually working for the best interest of shareholders, may wish to limit the asset substitution. Nevertheless, practically, optimal leverage instability choice has never been considered through the use of derivatives in which it can be controlled continuously. Similarly, Myer's (1984), worked on role of dividend policy and underinvestment issue in enabling a firm. Fan and Sundaresan (1997); Zweibel (1996) and Paul (1997) all have considered the levered firm and optimal dynamic dividend policies for them. From all these recent papers, Zweibel (1996) have addressed the agency problem of dividends.

Many papers have focused on financial policy. Until today, there are three major classes of models, the agency, the trade-off theory and the pecking order hypotheses. The agency hypothesis states that firms also face the cost of financial distress due to divergence in the utility function of stakeholders and informational irregularities but in this situation, the level of debt becomes a governance device for a firm. Similarly, the trade-off hypothesis says that the optimal financing policy consists of adjustment towards the target debt level. The target leverage ratio balances the marginal financial distress cost of debt with marginal tax benefit. Pecking order hypothesis talked about the firm value, which is affected by informational irregularity bias investment policy. The unfavorable selection discount leads to rejecting the positive NPV projects. The optimal financial policy in a result, firstly, tires out the least sensitive financing source, i.e. internal financing, then debt and as a last resort, equity.

Although many variables affect the capital structure systematically, but they are also failed to distinguish between the above three hypotheses. According to Bender *et al*. (2005), capital structure regressions are static and are fail to capture an important dimension. There are many studies on the topic of debt to equity choice such as, Hovakimian, and Tehranian, (2004); Hovakimian (2004);Titman *et al* (2001)l Stulz *et al*(1996). These studies highlight the economic role of operating performance, Adjustment to a target leverage ratio and market performance. The impacts of market and operating performance analysis should highlight whether these are the significant determinants of the target leverage ratio and/or of deviations from this target.

Some studies focused on the international samples to test capital structure models. Booth *et al*. (2001) and Rajan and Zingales (1995) are two clear exceptions of these studies. Rajan and Zingales (1995) worked on the G7 countries and pointed out similar leverage levels across these countries, thus they invalidate this concept that firms in the market-oriented countries are less levered than the firms in bank -oriented countries but this distinction us beneficial to analyze the different financing sources. They are also in the view that the capital structure determinants (profitability, size, importance of tangible assets and growth) which are reported for the United States are equally important for other countries as well. The good understanding of the relevant institutional context (fiscal treatment, law of bankruptcy, accounting standards and ownership concentration) is necessary while identifying the capital structure basic determinants. Booth *et al* (2001) worked on the ten developing countries and suggests the existence of same determinants of capital structure, but again, national environment is very important. Bender *et al*. (2005) and Miguel and Pindado (2001), highlighted the European firms and focused some of the dynamic characteristics of the capital structure policy of these firms.

Bender *et al*. (2005) indicated that in the understanding process of financial policy, neither a simple pecking order nor a simple trade-off model is adequate; they also highlighted the timing issues and agency problem impacts upon capital structure. For the debt ratios, they figure out that firms limit themselves only to an upper barrier. As per pecking order theory also, firms prefer to issue equity or repayment of debts rather than to increase the debts level. Debt- equity choice is affected by both market and operating performance since debt limit the managers for cash payout and because of this reason during a lot of opportunity windows, equity may become cheap. Hovakimian (2004) was also in the view

that he does not found any firm which is unprofitable, seeking external funding will give preference to issue equity and on the other hand he found the profitable firms, to restrict the expropriation, do issue debts. Firms with high profits also prefer to issue more dividends instead of decreasing debt levels. Literature review shows that firm and debt disciplines managers prefer to issue debts and dividend increases when there is a shortage of profitable projects.

This paper is also the strand of previous literature. It aims to answer the following questions: how much Debt & Equity choice exists in sectors of Pakistan. To what extent does the sector (nature of business) affected the choices of debt-equity in Pakistani firms? Beyond sector effects, are there any homogeneous effects of debt-equity choices in Pakistan? Very limited work has been done so far to investigate the capital structure dynamics, the present paper is an effort towards this direction. A proper assessment of this issue especially in Pakistan required a control for institutional as well as dynamic dimensions. We therefore, are using the panel data of firms starting from the period 2004 to 2010.

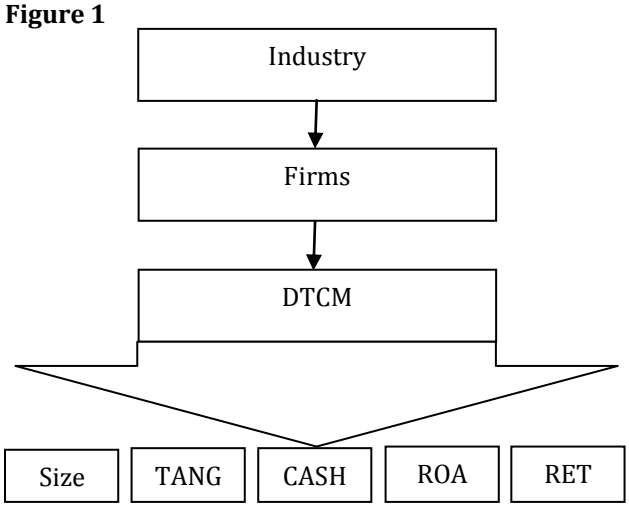
As for the firms, the analysis of debt-equity choice mainly focused on the causes which drive them to alter their capital structure significantly, its flexible and dynamic in nature. For the adjustment test toward a target leverage ratio, the debt-equity choice analysis needs to estimate the target. This estimation procedure of the target leverage in the current study is close to that of Bender *et al*. (2005). First, the determinants of observed debt leverage in the industries of the country will be analyzed. The remainder of the paper is organized as follows. Section 2 presents the observed debt levels. Section 3 studies their determinants for industries of Pakistan. In section 4, the relationship between leverage level and determinants of it by industries is presented. Finally, Section 5 presents the results of this analysis and contains some concluding remarks.

Objectives of the Study: In broader perspective, the main purpose of this research is to study the capital structure of Pakistani industry and to find out that management can increase profit by changing the leverage level. This paper is a step forward towards finding the level of leverage ratio in Pakistan and its relationship with determinants on Pakistani industry's data. Today's management has to consider the importance of capital structure due to change in economy and competitive environments. The premise of the current study is that if high management care about the capital structure by choosing the better debt equity choice then net profit will increase and business can avail several different advantages. As a consequence shareholder wealth will increase and they will become more loyal to business.

3. Methodology

Conceptual framework: The conceptual framework of this study is constructed around the financial leverage level of Pakistan. Financial leverage level can be categorized in two different perspectives; from firm's perspective and industrial perspective. As shown in figure 1.

Figure 1



In this research, focus is on the financial leverage level (DTCM) and its determinants (Size, Cash, Tang, ROA, RET) of industries, in order to study the effect of debt to capital measure (DTCM, independent

variables) on the different performance measure of the business (Size, Cash, Tang, ROA, RET, dependant variable); and also to see, if is there a relationship between the DTCM and determinants. After the test, if results show that there is a relationship between them than it can be said that management can increase the performance and profit indicators just by changing the debt equity structure.
The research question of the paper is to find out the impact of leverage levels on firms performance and profitability of Pakistani industries. What is the trend of industries to control the leverage level and to find out its relationship with its determinants?

Hypothesis
The hypothesis of the research paper are given below
H_1: There is a relationship between SIZE and DTCM of Pakistanis firms.
H_2: There is a relationship between TANG and DTCM of Pakistanis firm.
H_3: There is a relationship between ROA and DTCM of Pakistanis firm.
H_4: There is a relationship between CASH and DTCM of Pakistanis firm.
H_5: There is a relationship between RET and DTCM of Pakistanis firm.

Research Design: The overall framework addresses three key steps for research; relevant data, second; the level of financial leverage, determinants and the relationship between leverage level and determinants. As shown in figure 1, the areas are split into three categories Firms**,** Sector, Country (Pakistan)

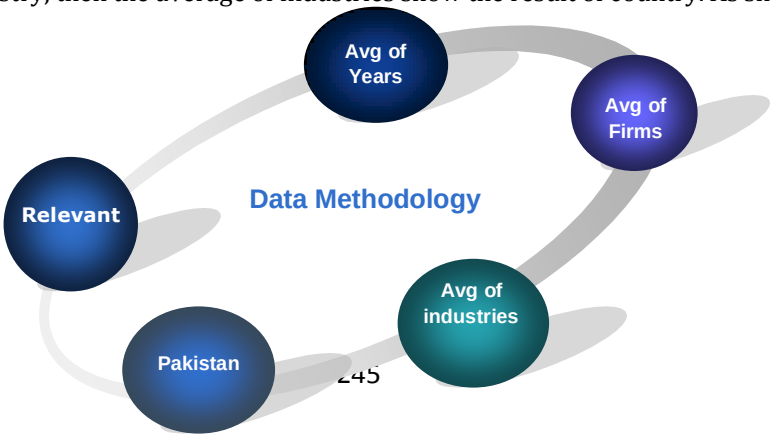
The determinants are the dependent variables; (a) SIZE, (b) CASH, (c) TANG, (d) ROA. (e) RET. And the debt to capital measure (DTCM) is independent variable. The effect of independent variable will be observed on the dependant variable, i.e., affect of DTCM on SIZE etc. In other words, it will be observed that how a capital structure strategy is influenced as a result of the five dependent variables. In figure 1 the H1-H5 indicates the five hypotheses, which show the relationship of DTCM with each determinant individually. The SIZE (log of sale) shows the sale performance, TANG is the ratio of tangible Asset / T. Asset, ROA stand for return on asset and calculated as EBIT / T. Asset, CASH is the ratio which is calculated as Cash / T. Asset, RET is the ratio of the annual change in the market value of equity to the market value of equity at the beginning of the year. These determinants are known as the performance and profit indicator of the firm so we can say that relationship of DTCM to determinants actually show the relationship of leverage position (capital structure) with the performance and profit of the firm.

Sampling: Sample is according to convenient sampling method to complete this paper. Three sectors (commercial banking, cement industry and fertilizer industry) are selected, 24 firms from these three sectors have been selected. The secondary data from financial statement and price indexes for market value of equity of firms was observed from the period 2004-10. In this way 168 financial statements of 24 firms, within the 3 sectors of Pakistan were taken.

Industries	Firms	Years	Observation
3	24	7	168

Data Collection: The research was based on secondary data, which was collected from the firm's published annual reports from the Karachi stock exchange (KSE) and security exchange commission of Pakistan (SECP). The collection of relevant data is very important. The relevant data is abstracted from the audited annual reports of the firms and then the average result of these firms of a sector is consider as the result of one industry, then the average of industries show the result of country. As shown in figure 2.

Figure 2



Data Testing Instrument: To find the relevant data and testing of the relevant data, study use two statistical tools; Arithmetic Mean (A.M), standard derivation (S.D) and to find the relationship of DTCM with the determinants it use parametric tests regression and correlation to achieve the objective of the study.

4. Results and Analysis

Table 1: Level of leverage ratio by industry

Industry	DTCM	# observations	# Firms
BANKS	10.831	63	9
CEMENT	1.086	63	9
Fertilizer	1.244	42	6

The data is from the published financial statements and the sample contains firms of 3 industries for the period 2004-10. Table 1 presents mean debt levels by industry where DTCM is the financial debt to market capital ratio. Debt levels around these are not homogeneous the main reason behind this is that all industries are different in nature of business but there is a short different in manufacturing sectors; cement and fertilizer sector as compare to the banking sector. Cement sector has smaller mean leverage ratios than fertilizer and commercial banks. Those sectors which have the high DTCM increase the external equity finance from shareholder to protect their liquidity risk.

As mentioned above, an investigation of the leverage ratio determinants is a prerequisite to analyze the debt-equity choice in Pakistani sectors. Regress leverage ratios on a set of explanatory variables. This study uses correlation and regression results. The target leverage ratio is the debt ratio that firms would choose in the absence of transaction cost, informational asymmetries or other adjustment costs. In the study the natural logarithm of sales was used as a proxy for firm size (SIZE). Previous literature also used this as measure for size (Rajan and Zingales, 1995; Booth *et al*., 2001). For the tangible assets the ratio of tangible assets to total assets (TANG) was used as a proxy for tangible assets as used by Rajan and Zingales(1995) also. Two variables account for operating performance.

The ratio of earning (before interest and taxes- EBIT) to the total assets defines the profitability (ROA) variable as used by Miguel and Pindado, (2001), Rajan and Zingales (1995). ROA is proxy for internal financing capacity. Study includes CASH in as explanatory variable. It is calculated by dividing total assets on cash. RET ratio is used as a proxy for past accumulation of financial slack, also used a variable to proxy for market performance. The relative changes in market value of equity (RET) to control for price effects. The nature of business, differences among jurisdictions, the risk profile of managers and shareholders and varying degrees of exports by companies suggested that financial policies differ within sectors. Moreover, the changes in the institutional context and macroeconomic shocks affect the results. For these reasons, study prefers the data of same period.

Table 2: Correlation between Leverage Ratio and Determinants (Banking Sector)

	DTCM	***SIZE***	***TANG***	***ROA***	***CASH***	***RET***
DTCM	1					
SIZE	0.6862	1				
TANG	-0.4606	-0.7268	1			
ROA	-0.1859	0.5332	-0.3071	1		
CASH	0.6014	0.5057	-0.0385	-0.1291	1	
RET	0.0384	0.7151	-0.3521	0.9465	0.1955	1

Table 3 : Correlation Between Leverage Ratio And its Determinants (Cement Sector)

	DTCM	SIZE	TANG	ROA	CASH	RET
DTCM	1					
SIZE	-0.9532	1				
TANG	-0.6959	0.6546	1			
ROA	0.4111	-0.2852	0.2027	1		
CASH	0.5535	-0.3888	-0.2797	0.8231	1	
RET	0.6119	-0.6800	-0.3517	0.5399	0.6906	1

Table 4 :Correlation Between Leverage Ratio And Determinants (Fertilizer Sector)

	DTCM	SIZE	TANG	ROA	CASH	RET
DTCM	1					
SIZE	0.4552	1				
TANG	0.5337	0.6550	1			
ROA	0.1880	0.9087	0.2936	1		
CASH	-0.6753	-0.9421	-0.8243	-0.7232	1	
RET	0.1773	-0.3434	0.4836	-0.6926	0.0567	1

In banking and fertilizer sector, SIZE enters correlation with a positive sign. It is very true in the case of banking sector because in banking accounting the deposits are also the part of their debts, that's way their SIZE (sale) will be increase when ever their debt (deposits) increase. In case of fertilizer sector this is also the positive relationship between their leverage level and sale. But the result of cement sector shows that there is a negative relationship between their DTCM and SIZE.

This result is as per our hypothesis i.e. larger firms have higher target debt levels and stable cash flows. These stable cash flows lessen down the bankruptcy chances and ultimately the costs of financial distress. They also raise the probability that the debt tax shield can be fully exhausted. Since the sign of SIZE is very important to understand the internal strength of the firms and industry. If the sign is positive then it is safe for debt holder and liquidity risk is manageable for management. But if the sign is negative then it's not safe for debt provider and also risky for management.

TANG is showing the very true relationship with DTCM. The negative sign in banking sector show that the banks are not investing their debts (depositor's money) in tangible asset, its true in banking sector because banker are responsible to pay interest to depositors that's way they provide the loan to others on high interest and earn from spread. In fertilizer sector the positive sign shows that whenever firms increase their debt they use that money for to increase their tangible assets to increase the productivity, infect to increase sale. Indicator of TANG also supports the indication of SIZE. But the sign of TANG in cement sector shows that the firms of cement sector are not using there their debt financing to increase the tangible asset, so their productivity and sale is not increasing. In cement sector TANG also supporting the results of SIZE. Firms of cement sector are increasing their debt from debt financing only to fulfill their current liabilities or obligations, which is again a bad indicator from management.

The positive sign of TANG is good indicator because tangible assets act as collateral. If the company liquidated or in default cases, these assets have the higher residual value than other ones. In these cases the debt holders can demand for the selling of these tangible assets as collaterals. Consequently, higher the tangible assets, greater will be the leverage ratio. ROA and CASH show the negative sign in banking and fertilizer sector respectively. When ROA is negative in banking sector, describe that spread is not playing a proper role to increase the EBIT and positive sign show stable and high operating profitability increased the probability of fully exhausting tax shields and decreases the bankruptcy probability. Managers as compare to shareholder are more concerned with CASH because it increases their discretion and minimize the firm risk. CASH excess however can be counterbalanced by the rising debt ratio.

The observed negative impacts on the debt levels by the operating performance variables should not be shocking because in capital structure researches, these are one of the most documented regularities. A common explanation follows from pecking order models where due to underinvestment cost, there is a cheap internal financing (Myers and Majluf, 1984, Myers, 1984;). By keeping the all other things

(dividend, information asymmetry levels and investments) equal for a given and reasonable debts level, reduction in profitability raise the needs of financing. Whenever there is an exhausted slack, debt financing is required as its value is less more sensitive to equity value than the information asymmetries.

RET show the positive relationship with DTCM in each sector but week relationship in banking sector. But in few studies RET show the negative relationship with DTCM. The change is only due to the different stock markets of country. In Pakistan the Karachi stock exchange (KSE) is a week form of market while in Bender *et al*. (2005); the countries which are used having developed and strong form of market. Overall the results of this study are matching with the results of Bender *et al*. (2005). Minor change in results of few determinants is only due to the nature of business, country's regulations and policies implemented by firms. The results are supporting the hypotheses that yes there is relationship between DTCM and its determinants.

Regression Analysis

Table 5 : Regression in three industries

	Coefficient	**t-stat**	**Prob.**	**Std.err**
SIZE	0.36354	-2.2734	0.041	0.863
TANG	-0.13742	-3.6645	0.034	0.537
ROA	0.2561	7.8965	0.000	0.896
Cash	0.2153	-1.8543	0.731	0.635
RET	0.4367	8.4322	0.000	0.513
R^2	0.2875			
R^2-Adj	0.2732			
F-Stat	44.223			
S.E	6.3722			

With p-value less than 0.05 and t-value -2.3 the result indicates that SIZE has positive and significant relationship with DTCM (H1 accepted). With p-value less than 0.05 and t-value -3.7 the result indicates that TANG has negative but significant relationship with DTCM (H2 accepted). With p-value less than 0.05 and t-value 7.9 the result indicates that ROA has positive and significant relationship with DTCM (H3 accepted). With p-value more than 0.05 and t-value 0.73 the result indicates that CASH has positive but not significant relationship with DTCM (H4 rejected). With p-value less than 0.05 and t-value 8.4 the result indicates that RET has positive and significant relationship with DTCM (H5 accepted). From the above table, regression results imply that the model explains the 28% of the changes in DTCM. The F–Statistic proves the validity of the estimated model. In addition, except cash, all coefficients i.e. SIZE, TANG, ROA and RET are statistically significant in level of confidence 95%.

5. Conclusion

This paper finds the relationship between determinants and DTCM in industries of Pakistan by using a sample of 19 Pakistani firms over the period 2004-10. Study provides evidence that DTCM and determinants have the relation but no one from these sectors is following the relationship wholly and appropriately. And they are frustrating the trade-off model, pecking order model and agency model infect they are just following the trend which is set in their sectors because the results shows the homogeneous effects of firms with in the industry.

These sectors have to consider the above-mentioned models and they do not cross an upper level of debts (maximum capacity of debt). Marketing and operating performance, both affects the debt-equity choices considerably. Particularly, debts, limit the managers for cash payout, and equity may become cheap if there are many windows for opportunities. Internal financing is preferred over external whenever it is available, but because sometimes it becomes source of conflict so firms limit the future excess of slack. If we consider the agency hypothesis also, then profitable firms give preference to dividends rise instead of decreasing debt levels. This study also highlights that debt holder and shareholder conflicts, limit the external equity financing. Results also show that the firms having value enhancing investment projects does not adopt the debt financing as it does not compromise of suitable financing form for them, instead,

such firms issue equity. On the other hand if there are lacks of profitable projects then firms prefer issuing debts and increasing dividends.

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